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ARC DISCHARGER,(U)
AUG 78 S A SMIRNOV, I I AKSENOV, V Z AMELIN
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FOREIGN TECHNOLOGY DIVISION

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by

S.A. Smirnov, I.I. Aksenov, et al

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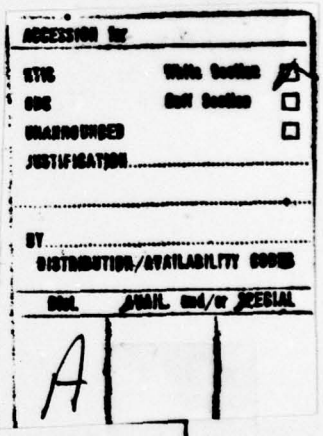

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U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	*А а*	A, a	Р р	*Р р*	R, r
Б б	*Б б*	B, b	С с	*С с*	S, s
В в	*В в*	V, v	Т т	*Т т*	T, t
Г г	*Г г*	G, g	У у	*У у*	U, u
Д д	*Д д*	D, d	Ф ф	*Ф ф*	F, f
Е е	*Е е*	Ye, ye; E, e*	Х х	*Х х*	Kh, kh
Ж ж	*Ж ж*	Zh, zh	Ц ц	*Ц ц*	Ts, ts
З з	*З з*	Z, z	Ч ч	*Ч ч*	Ch, ch
И и	*И и*	I, i	Ш ш	*Ш ш*	Sh, sh
Й й	*Й й*	Y, y	Щ щ	*Щ щ*	Shch, shch
К к	*К к*	K, k	Ъ ъ	*Ъ ъ*	"
Л л	*Л л*	L, l	Ы ы	*Ы ы*	Y, y
М м	*М м*	M, m	Ь ь	*Ь ь*	'
Н н	*Н н*	N, n	Э э	*Э э*	E, e
О о	*О о*	O, o	Ю ю	*Ю ю*	Yu, yu
П п	*П п*	P, p	Я я	*Я я*	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	$\sinh^{-1}$
cos	cos	ch	cosh	arc ch	$\cosh^{-1}$
tg	tan	th	tanh	arc th	$\tanh^{-1}$
ctg	cot	cth	coth	arc cth	$\coth^{-1}$
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian	English
rot	curl
lg	log

ARC DISCHARGER

S.A. Smirnov, I.I. Aksenov, V.Z. Amelin, and Ye.G. Taller
Physicotechnical Institute of Academy of Sciences of Ukrainian SSR

Known are arc dischargers the electrodes of which are made in the form of slotted busbars curved along the circumference, the ends of which overlap each other, and current feeds connected to one of the ends of each electrode, and the electrodes are located coaxially in order to provide the opposite direction of the currents in them during the discharge.

In the described discharger, for the purpose of decreasing the erosion of the electrodes, the ends of the buses with the current feeds are shifted one with respect to the other along the circumference; the ends of the buses with the current feeds can be shifted along the circumference by 180°; for the purpose of simplifying the design, the electrodes can be arranged coaxially in parallel planes.

Figure 1 gives a schematic diagram of electrodes of the discharger being described with a shift in the current-carrying buses; Fig. 2 gives a diagram of the movement of currents along the electrodes; Fig. 3 gives a schematic diagram of the electrodes with a shift in the current-carrying buses of 180°; Fig. 4 gives the same diagram but with an overlapping of the places of connection of the buses with the electrodes.

The system of electrodes consists of an external ring

electrode 1 with slot 2 and an internal ring electrode 3 with slot 4. A ring discharge gap 5 is formed between electrodes 1 and 3. The current-carrying buses 6 and 7 are connected with electrodes 1 and 3 directly near the slots 2 and 4 and are both located on one side of the slots.

This system at the moment of discharge can be examined as two parallel current-carrying rods wound in an open-circuited ring.

It is known that acting on the cross-connector is an electrodynamic force directed to the side of the free ends. If the arc 8 plays the role of the cross-connector, then it is shifted from the place of origin 9 to the ends 10. Reaching up to the free ends 10 and being elongated under the effect of the electrodynamic forces, the arc bridges the discharge gap 5 from the opposite side of the gap along the shorter path and continues movement in the same direction. Thus the continuous movement of the arc in the discharge gap 5 occurs during the entire time of the discarge.

At points 11 the electrodynamic forces are few, and the arc passes on inertia. At low currents the stopping of the arc can occur here. The best results are obtained if one of the electrodes is turned 180° with respect to the other. Here the force which rotates the arc nowhere disappears.

Leading to a similar result is the fulfillment of the slots so that the ends of the rods coiled into a ring would fit into each other not butted but overlapped. If the magnitude of this overlap is not less than the length of the arc, then in this case the force which rotates the arc practically does not depend on the position of the latter and is determined only by the magnitude of the switchable current and the distance between the electrodes.

The examined variants of the making of the electrodes of the discharger are not uniquely possible, and in particular the electrodes can be arranged coaxially in parallel planes. One of the electrodes, for example, the internal one, can be made in the form of a whole disk and so on.

The described discharger advantageously differs from the known dischargers in that the effect of the weakening of the erosion is achieved without the introduction into the discharger of any additional elements (coils of magnetic blowout), which make its operation more expensive and complex.

Object of the invention

1. The object of the invention is an arc discharger which contains electrodes made in the form of slotted busbars, the ends of which overlap each other, curved along the circumference, and current feeds connected to one of the ends of each electrode whereupon the electrodes are located coaxially so that they would provide the opposite direction of the currents in them during the discharge. This discharger is distinguished in that for the purpose of decreasing the erosion of the electrodes, the ends of the busbars with the current feeds are shifted with respect to each other along the circumference.

2. A discharger according to item 1, which is distinguished by the fact that the ends of the busbars with the current feeds are shifted 180° along the circumference.

3. A discharger according to item 1, which is distinguished by the fact that for the purpose of simplifying the design, the electrodes are located coaxially in parallel planes.

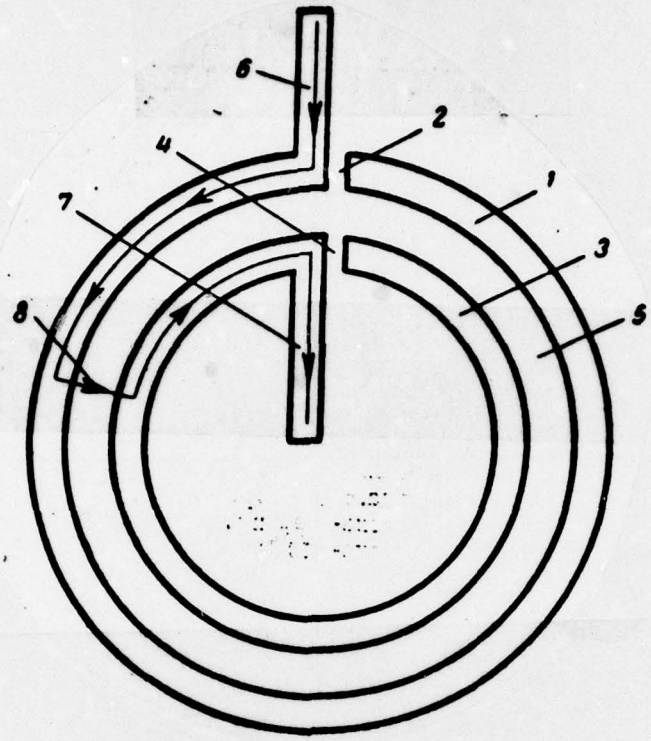

Fig. 1

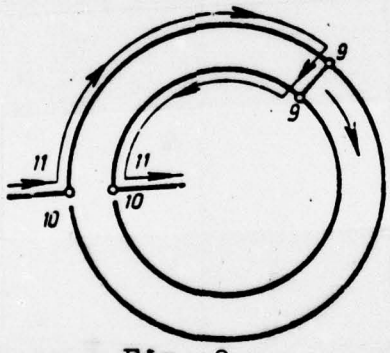

Fig. 2

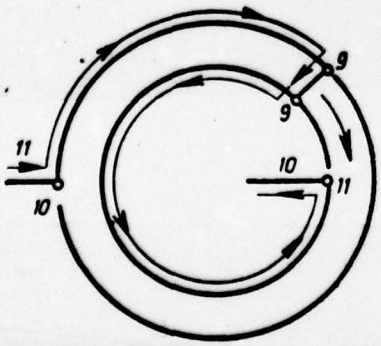

Fig. 3

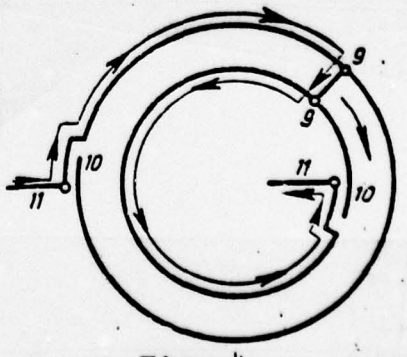

Fig. 4